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A REVIEW OF THE GENUS *DELPHASTUS* CASEY

(COLEOPTERA: COCCINELLIDAE)

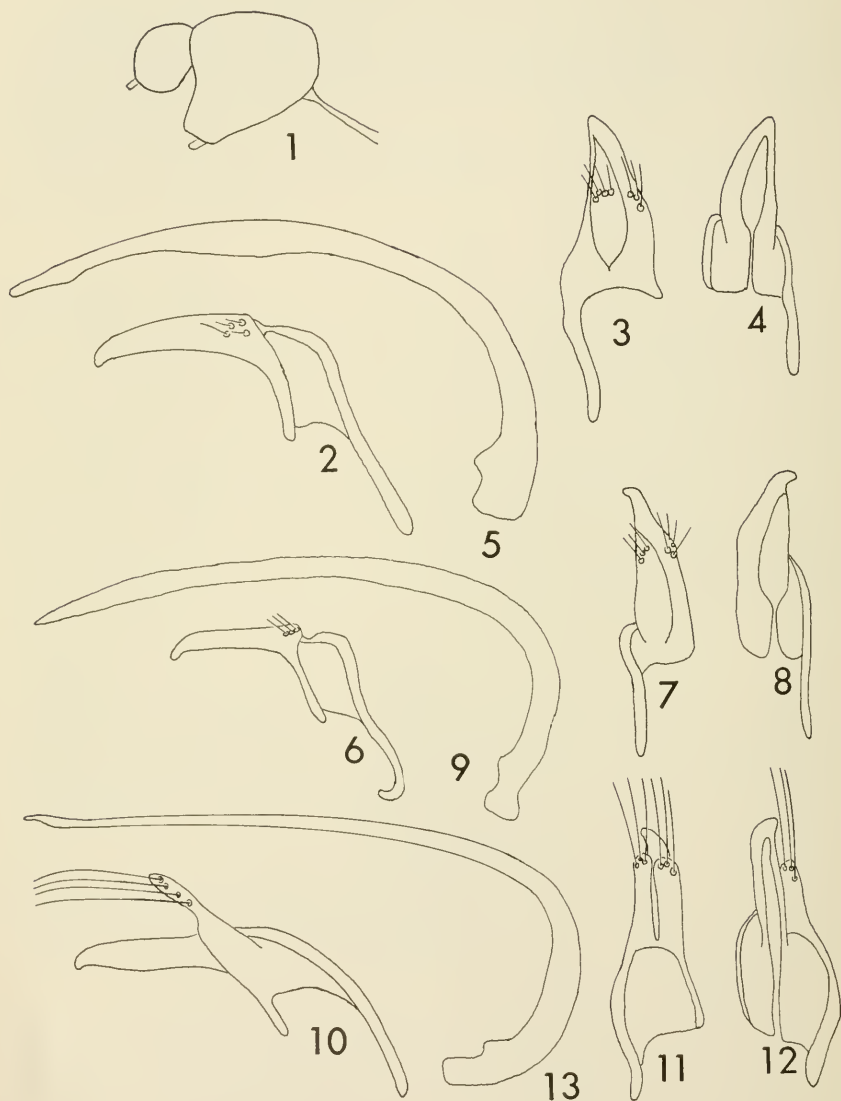
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ABSTRACT—A summary of previous work on the genus is presented and tribal affinities indicated. Five new species are described and one species synonymized. A key to all known species is included along with a brief description of each. Male genitalia of most species are illustrated.

The genus *Delphastus* was erected by Casey (1899) for four species, one of which was a Horn species, three were LeConte species, and one Casey's. Champion (1913) described a new species from Guatemala and Mexico, erecting the genus *Lioscymnus* for it, and Nunenmacher (1937) added another *Delphastus* species from Argentina. Chapin (1940) reviewed the genera related to *Delphastus* and described two new *Delphastus* species from Puerto Rico and Panama. Five new *Delphastus* are described herein to bring the total known species to 12.

Chapin (1940) removed *Delphastus* and related genera from the tribe Oeneini but did not propose a new tribal name. Blackwelder (1945) placed *Delphastus* as well as *Catana* Chapin, *Pseudosmilia* Bréthes, and *Microweisea* Cockerell in the Serangiini. Pope (1962) removed *Pseudosmilia* and *Microweisea* and placed them in the African and Oriental tribe Pharini. The Serangiini differ from the Pharini in that the antennal club is composed of a single segment and the prosternum is strongly lobed in front, completely concealing the mouthparts in repose. The Pharini have two or more segments in the antennal club and the prosternum does not conceal the mouthparts.

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Figs. 1-13, *Delphastus* spp. Fig. 1, *argentinicus* Nun. ♀, receptaculus seminis. Figs. 2-5, *nebulosus* Chapin ♂: 2, basal piece and lobe, lateral; 3, basal piece and lobe, dorsal; 4, basal piece and lobe, ventral; 5, siphus, lateral. Figs. 6-9, *pallidus* (Lec.) ♂: 6, basal piece and lobe, lateral; 7, basal piece and lobe, dorsal; 8, basal piece and lobe, ventral; 9, siphus, lateral. Figs. 10-13, *collaris* Chapin ♂: 10, basal piece and lobe, lateral; 11, basal piece and lobe, dorsal; 12, basal piece and lobe, ventral; 13, siphus, lateral.

Conte) have the elytral punctures distinct enough to go in this group but the occurrence of this is sporadic, even among individuals of the same series. The remaining species have the elytra impunctate, or apparently so, and the dorsal pubescence is short and sparse or lacking altogether. These species are: *catalinae* (Horn); *diversipes* (Champion); *pusillus* (LeConte); *argentinus* Nunenmacher.

The female *receptaculum seminis*, while apparently not differing between species, is characteristic of the genus (fig. 1).

KEY TO SPECIES OF *Delphastus*

1. Elytra pale, brownish yellow to yellow 2
 Elytra dark, brown to black 3
2. Elytra with dark round blotch at humeral angles *nebulosus* Chapin
 Elytra lacking darker blotch *pallidus* (LeConte)
3. Male pronotum entirely yellow; dorsal surface strongly pubescent; second to fourth abdominal sternites strongly punctured; Panama *collaris* Chapin
 Male pronotum usually brown or black, never entirely yellow; dorsal surface may or may not be strongly pubescent; second to fourth abdominal sternites not punctured or feebly so 4
4. Length 1.00 mm; median area of pronotum impunctate *minutus*, n. sp.
 Length 1.10 mm or more; median area of pronotum punctured (except in *catalinae*) 5
5. Elytra distinctly punctured 6
 Elytra impunctate or very faintly punctured 9
6. Epipleura and metasternum coarsely and densely punctured; Brazil
 *abditus*, n. sp.
 Epipleura and metasternum finely and sparsely punctured or impunctate 7
7. Pronotum yellow except for dark discal area; Venezuela *dubitalis*, n. sp.
 Pronotum completely dark 8
8. Epipleura and metasternum black; epipleura flat, not grooved; Peru
 *anthracinus*, n. sp.
 Epipleura and metasternum reddish brown; epipleura distinctly grooved; Trinidad and Guyana *chapini*, n. sp.
9. Prosternal lobe strongly punctured; pronotum with a few coarse punctures at center of disc, narrow median area impunctate; California
 *catalinae* (Horn)
 Prosternal lobe impunctate or only faintly so; pronotum with coarse punctures scattered throughout 10
10. Head with a band of coarse punctures across vertex; length less than 1.60 mm 11
 Head without a band of coarse punctures across vertex, an occasional faint puncture present; length 1.60 mm *diversipes* (Champion)
11. Elytra black to brown; pronotal punctures fine in eastern U. S. specimens, becoming coarser in southern and western specimens; U. S., south to Ecuador and Peru *pusillus* (LeConte)
 Elytra brown; pronotal punctures coarse; Argentina, Brazil and Paraguay *argentinus* Nunenmacher

***Delphastus nebulosus* Chapin**

(Figs. 2-5)

Delphastus nebulosus Chapin, 1940, p. 264.

Length 1.00 to 1.10 mm, width 0.75 to 0.85 mm. Pale yellowish brown, elytra with a brown humeral spot, legs nearly white. Head with small setigerous punctures; pronotum sparsely and setigerously punctate; elytra with setigerous punctures usually confined to basal and apical areas; ventral sternites impunctate except last sternite which is finely densely punctured, pubescent. Middle and hind tibiae finely denticulate on outer margin at apex of angulation. Male genitalia with apex of basal lobe blunt, slightly curved; parameres apparently absent, a few short setae present on basal lobe (figs. 2, 3, 4); siphon sinuate, thickened near middle and again before apex (fig. 5).

Type locality.—Villalba, Puerto Rico.

Distribution.—Puerto Rico.

***Delphastus pallidus* (LeConte)**

(Figs. 6-9)

Oeneis pallidus LeConte, 1878, p. 400.*Delphastus pallidus*: Casey, 1899, p. 112.

Length 0.90 to 1.05 mm, width 0.70 to 0.80 mm. Pale reddish brown, legs reddish yellow. Head with small setigerous punctures; pronotum sparsely punctured, setigerous; elytra sparsely and setigerously punctate at base, along lateral margins, at apex; ventral surface impunctate, abdominal sternites strongly alutaceous with punctures present. Middle and hind tibiae not denticulate at outer margin of angulation. Male genitalia with apex of basal lobe abruptly bent; parameres apparently absent, a few short setae present on basal lobe (figs. 6, 7, 8); siphon with apex straight, blunt (fig. 9).

Type locality.—Sand Point, Florida.

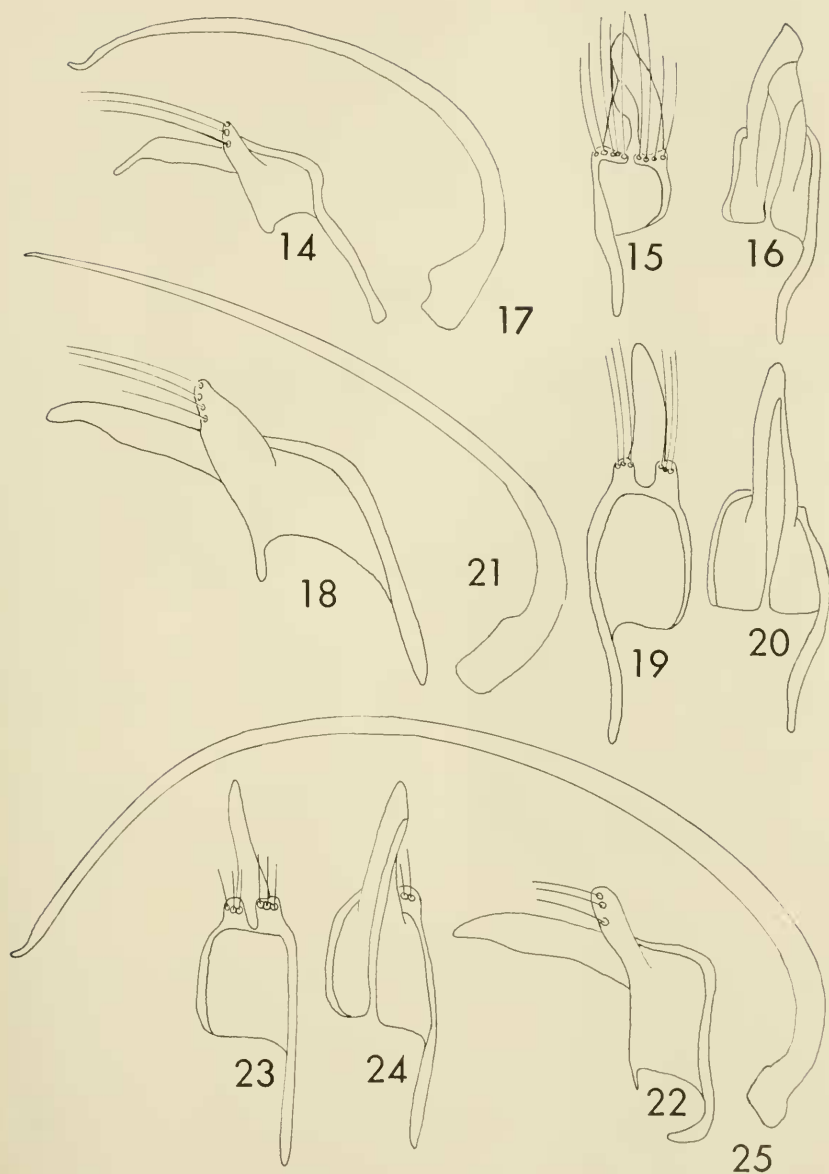
Distribution.—Florida; Bahamas, Eleuthera, and Harbor Is.; Cuba; Dominican Republic; Virgin Islands, St. Thomas.

***Delphastus collaris* Chapin**

(Figs. 10-13)

Delphastus collaris Chapin, 1940, p. 266.

Length 1.20 to 1.40 mm, width 1.00 to 1.05 mm. Piceous to dark brown, male with head, pronotum, and legs yellowish brown, female with head brown and legs yellow. Head with small setigerous punctures and coarser nonsetigerous punctures; pronotum with a mixture of fine and coarse punctures, a few of which are setigerous; elytra finely and moderately punctured, sparsely pubescent; metasternum finely sparsely punctured; first abdominal sternite sparsely finely punctured, second and third sternites with a single row of punctures incomplete medially, fourth sternite with complete row of punctures, fifth sternite finely sparsely punctured. Middle and hind tibiae with denticles elongated into crests on outer margin. Male genitalia with apex of basal lobe abruptly bent; parameres extremely



Figs. 14-25, *Delphastus* spp. Figs. 14-17, *minutus*, n. sp. ♂: 14, basal piece and lobe, lateral; 15, basal piece and lobe, dorsal; 16, basal piece and lobe, ventral; 17, siphus, lateral. Figs. 18-21, *abditus*, n. sp. ♂: 18, basal piece and lobe, lateral; 19, basal piece and lobe, dorsal; 20, basal piece and lobe, ventral; 21, siphus, lateral. Figs. 22-25, *dubitalis*, n. sp. ♂: 22, basal piece and lobe, lateral; 23, basal piece and lobe, dorsal; 24, basal piece and lobe, ventral; 25, siphus, lateral.

long (figs. 10, 11, 12); siphon straight in apical two-thirds, bent upward just before apex (fig. 12).

Type locality.—Paraiso, Canal Zone, Panama.

Distribution.—Panama.

The yellow male pronotum distinguishes that sex immediately and females may usually be recognized by the very coarse punctures on the second to fourth sternites, the relatively dense dorsal pubescence, and locality.

***Delphastus minutus*, n. sp.**

(Figs. 14–17)

Male.—Length 1.00 mm, width 0.80 mm. Dark reddish brown, head and legs yellowish brown. Head sparsely and setigerously punctate, a transverse alutaceous band across vertex; pronotum sparsely and coarsely punctured except for a narrow median impunctate area extending from base to apex, a few punctures setigerous; Elytra impunctate except a few faint setigerous punctures at lateral and basal margins; prosternal lobe with a few coarse punctures; metasternum impunctate; First through fourth abdominal sternites impunctate, fifth finely sparsely punctured, second through fifth strongly alutaceous. Middle and hind tibiae with blunt denticle on outer margin of angulation. Male genitalia with apex bent abruptly downward in lateral view; parameres transverse (figs. 14, 15, 16); siphon rounded with tip bent outward (fig. 17).

Holotype.—Panama: Pan., 12-IV, AH Jennings collector (USNM 70402).

Paratypes.—2, 1 same data as holotype, 1 Tampico, Mexico, E. A. Schwarz collector (USNM).

With the exception of *pallidus* and *nebulosus* this is the smallest species as yet described in the genus. The size and the narrow impunctate area on the pronotum should distinguish it.

***Delphastus additus*, n. sp.**

(Figs. 18–21)

Male.—Length 1.40 mm, width 1.18 mm. Piceous, pronotum black, head, prosternum and legs yellow. Head sparsely and setigerously punctured with a mixture of large and small punctures; pronotum coarsely punctured, pubescence relatively dense; elytra coarsely and densely punctured, strongly pubescent except on discal area; prosternal lobe impunctate; metasternum densely and coarsely punctured; first abdominal sternite finely sparsely punctured, second sternite densely coarsely punctured, third and fourth sternites impunctate, fifth sternite finely densely punctured, pubescent. Middle and hind tibiae with a crest on outer margin of angulation. Male genitalia with basal lobe sinuate on lower margin and in lateral view bent downward slightly; parameres widely separated (figs. 18, 19, 20); siphon slightly curved, apex straight, sharp (fig. 21).

Holotype.—Brazil; Nova Teutonia, lat. 27-11S, 10n. 52-23 W, VIII-31-'48, F. Plaumann (USNM 70403).

This species most nearly resembles *anthracinus*, n. sp., from which it may be separated by the coarse punctures of the metasternum and the coarse punctures on the second abdominal sternite, both of which are very finely punctured in *anthracinus*.

***Delphastus dubitalis*, n. sp.**

(Figs. 22-25)

Male.—Length 1.25 mm, width 1.00 mm. Elytra black, pronotum yellow with median area piceous, head and legs yellow, epipleura, metasternum and abdomen reddish brown. Head sparsely and setigerously punctate; pronotum coarsely densely punctured, pubescence relatively dense. Elytra coarsely densely punctured, strongly pubescent except on discal area; prosternal lobe impunctate; first abdominal sternite finely sparsely punctured, second sternite coarsely densely punctured, third and fourth sternites with a few coarse punctures, fifth sternite finely densely punctured, pubescent. Middle and hind tibiae with a crest on outer margin of angulation. Male genitalia with basal lobe sinuate on lower margin and bent downward in lateral view, narrow in ventral view (figs. 22, 23, 24); siphon strongly curved, tip slightly recurved (fig. 25).

Holotype.—Venezuela: Guanaro, estado Portuguesa, IX-10 to 13-1957, Borys Malkin collector; in California Academy of Sciences collection.

This species most nearly resembles *collaris* Chapin and *chapini*, n. sp., from both of which the male genitalia will separate it. The dark median blotch on the pronotal disc may be variable but more specimens are needed to determine this.

***Delphastus anthracinus*, n. sp.**

Female.—Length 1.40 mm, width 1.10 mm. Black, head, prosternum and legs reddish brown. Head finely sparsely setigerously punctured; pronotum with a mixture of large and small punctures, pubescence relatively dense; elytra finely densely punctured, strongly pubescent except on discal area; prosternal lobe impunctate; metasternum finely punctured; first and second abdominal sternites finely sparsely punctured, third and fourth sternites impunctate, fifth sternite finely sparsely punctured, pubescent, middle and hind tibiae with a crest on outer margin of angulation.

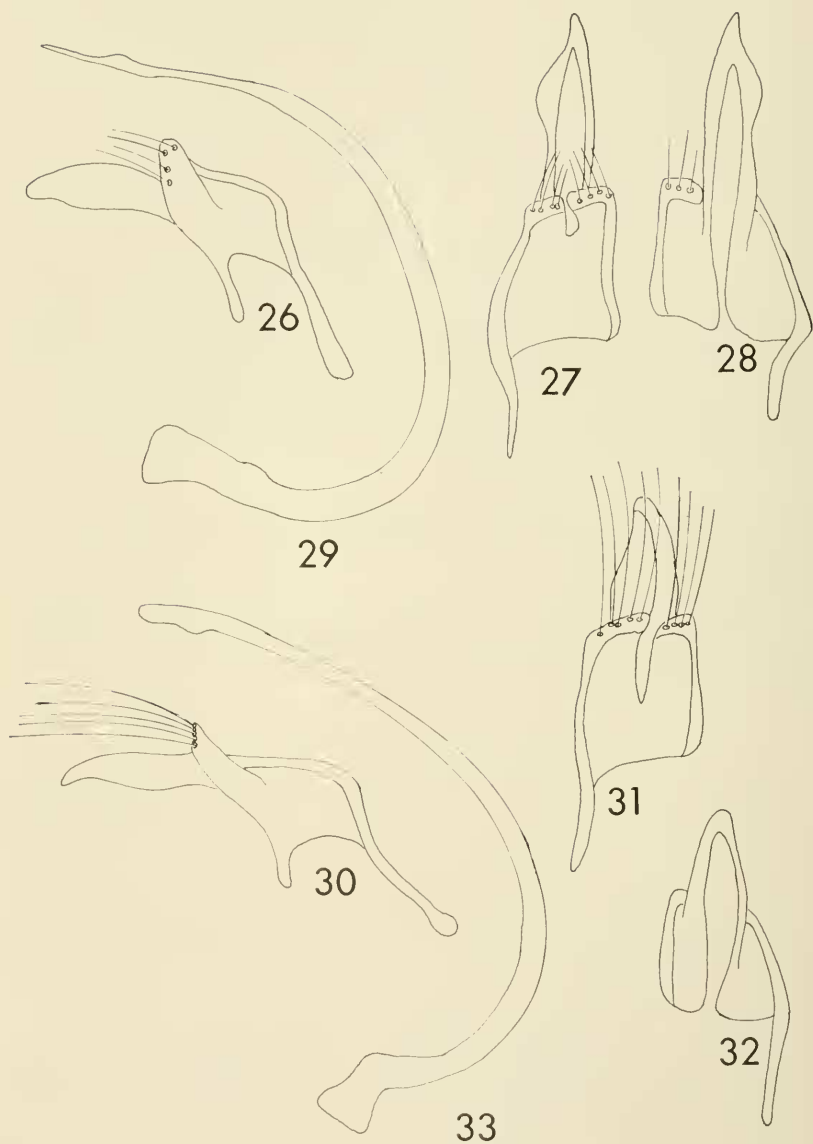
Holotype.—Peru: Dept. Huanuco, Tingo Maria, alt. 670 m., VIII-16-25, 1951, sweeping, G. H. Dieke (USNM 70404).

The apparent affinities of this species are discussed under *abditus*. Except for *pusillus* (LeConte) this is the only species from Peru examined.

***Delphastus chapini*, n. sp.**

(Figs. 26-29)

Male.—Length 1.15 to 1.20 mm, width 0.95 to 1.00 mm. Dark reddish brown, head and legs yellowish brown, prosternum, metasternum, and abdomen lighter



Figs. 26-33, *Delphastus* spp. Figs. 26-29, *chapini*, n. sp. ♂: 26, basal piece and lobe, lateral; 27, basal piece and lobe, dorsal; 28, basal piece and lobe, ventral; 29, siphon, lateral. Figs. 30-33, *catalinae* (Horn) ♂: 30, basal piece and lobe, lateral; 31, basal piece and lobe, dorsal; 32, basal piece and lobe, ventral; 33, siphon, lateral.

reddish brown. Head sparsely and setigerously punctured, large and small punctures mixed; pronotum with a mixture of large and small punctures, pubescence relatively dense; elytra moderately densely punctured, strongly pubescent except on discal area; prosternal lobe impunctate; metasternum sparsely coarsely punctured; first abdominal sternite sparsely finely punctured, second through fourth sternites alutaceous, impunctate, fifth sternite alutaceous, sparsely finely punctured. Middle and hind tibiae with a crest on outer margin of angulation. Male genitalia with basal lobe strongly asymmetrical, a distinct projection on one margin; parameres transverse (figs. 26, 27, 28); siphon strongly curved, slightly enlarged before apex, tip acuminate (fig. 29).

Female.—Similar to male except head reddish brown.

Holotype male.—Trinidad: B.W.I., Maracas Valley, 21 March 1951, collector F. J. Simmonds, on citrus (USNM 70405).

Paratypes.—62, 1 same data as holotype. British Guiana: Georgetown, Frn. Botanical Gardens, Oct. 3, 1918, H. Morrison Coll. A750. Trinidad: V-25-1939, R. G. Fennah, col # T4; Caroni River, Oct. 12, 1916, Harold Morrison A757; D'Abadie, Oct. 15, 1918, Harold Morrison A-761; Palo Seco, Oct. 20, 1918, Harold Morrison A-795; Port-of-Spain, Bot. Garden, Oct. 13, 1918, Harold Morrison A-759; Port-of-Spain, Dept. Agr. grounds, Oct. 24, 1918, Harold Morrison A-825; Port-of-Spain, Savanna, St. Clair, Oct. 24, 1918, Harold Morrison A-817; Port-of-Spain, 8-28-'37, K. A. Bartlett, P.R.943; St. Augustine, Feb. 1947, March 1951, F. J. Simmonds; St. Augustine, Aug. 28, '37, K. A. Bartlett, on *Asterolecanium miliaris*, P.R. 1962, 37-24924; San Fernando Hill, Oct. 20, 1918, Harold Morrison A-798. Other specimens seen: Puerto Rico, Mayaguez, P.R. # 2059, II-24-'38, K. A. Bartlett.

The Puerto Rico specimens were interceptions, probably from Trinidad and it does not appear that *chapini* is established in Puerto Rico. The male genitalia are very distinctive and the combination of punctured elytra and reddish brown metasternum and abdomen separate it from any presently known *Delphastus* except *dubitalis*. I take pleasure in naming this species for the late E. A. Chapin in recognition of his work on coccinellids.

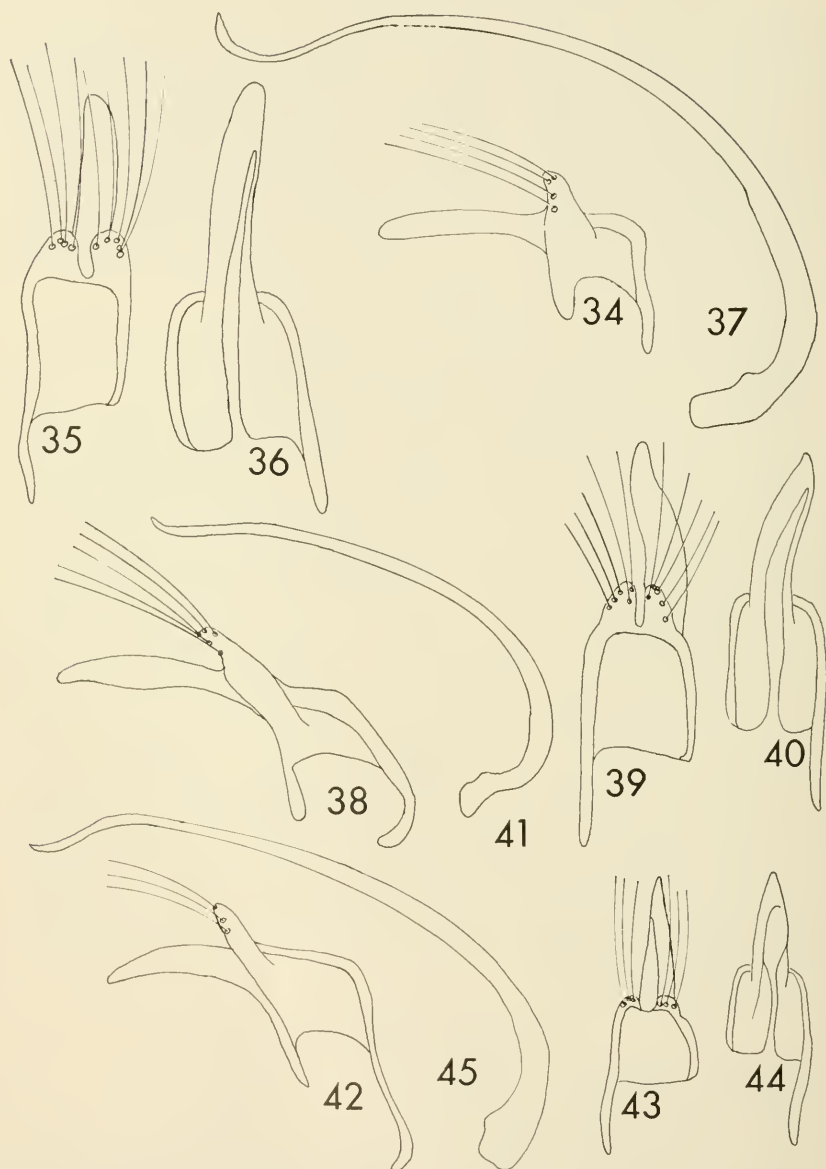
***Delphastus catalinae* (Horn)**

(Figs. 30-33)

Cryptognatha catalinae Horn, 1895, p. 83.

Delphastus catalinae: Casey, 1899, p. 112.

Length 1.40 to 1.50 mm, width 1.10 to 1.18 mm. Reddish brown, median area of pronotum slightly darker, legs yellowish brown, head of male yellowish brown. Head very finely sparsely punctured, pubescence nearly completely absent; pronotum with coarse punctures grouped on disc, impunctate laterally, pubescent; prosternal lobe strongly punctured; metasternum impunctate; first abdominal sternite faintly punctured, second through fourth sternites alutaceous, impunctate, fifth sternite alutaceous, finely punctured, pubescent. Male genitalia with basal



Figs. 34-45, *Delphastus* spp. Figs. 34-37, *diversipes* (Champ.) ♂: 34, basal piece and lobe, lateral; 35, basal piece and lobe, dorsal; 36, basal piece and lobe, ventral; 37, siphon, lateral. Figs. 38-41, *pusillus* (Lec.) ♂: 38, basal piece and lobe, lateral; 39, basal piece and lobe, dorsal; 40, basal piece and lobe, ventral; 41, siphon, lateral. Figs. 42-45, *argentinicus* Nun. ♂: 42, basal piece and lobe, lateral; 43, basal piece and lobe, dorsal; 44, basal piece and lobe, ventral; 45, siphon, lateral.

lobe short, bent downward in lateral view; parameres transverse (figs. 30, 31, 32); siphon rounded, thickened at apex, ventral margin angulate (fig. 33).

Type locality.—Catalina, California.

Distribution.—Southern California.

Two specimens examined were recorded as feeding on *Aleyrodes kelloggi* (Pealius Kelloggi (Bemis)).

***Delphastus diversipes* (Champion)**

(Figs. 34–37)

Lioscymnus diversipes Champion, 1913, p. 126.

Delphastus diversipes: Chapin, 1940, p. 263.

Length 1.60 mm, width 1.25 mm. Black, legs yellowish brown, head yellowish brown. Head sparsely finely punctured, slightly pubescent; pronotum coarsely punctured, slightly pubescent; elytra impunctate, a few short hairs present at base and apex; prosternal lobe and metasternum impunctate. First abdominal sternite sparsely finely punctured, second through fourth sternites impunctate, fifth sternite densely finely punctured, pubescent. Middle and hind tibiae with a crest on outer margin of angulation. Male genitalia with basal lobe long, apex blunt (figs. 34, 35, 36); siphon broadly curved, apex thickened and recurved (fig. 37).

Type locality.—Mexico.

Distribution.—Mexico and Guatemala.

A single male specimen was examined from Aceituno, Guatemala, collected by Champion. It is labeled "paratype" and is in the USNM collection. The large size and impunctate elytra separate it from other *Delphastus* except an occasional large specimen of *pusillus* (LeConte) from which it may be separated by the lack of coarse punctures on the vertex.

***Delphastus pusillus* (LeConte)**

(Figs. 38–41)

Oeneis pusillus LeConte, 1852, p. 135.

Delphastus pusillus: Casey, 1899, p. 112.

Oeneis puncticollis LeConte, 1852, p. 135.

Delphastus pusillus var. *puncticollis*: Casey, 1899, p. 112.

Delphastus sonoricus Casey, 1899, p. 112. **New synonymy.**

Length 1.40 to 1.60 mm, width 1.10 to 1.20 mm. Black, prosternum and legs yellow, males with head and lateral margins of pronotum yellow. Head with mixed large and small punctures, slightly pubescent, coarse punctures in a band across vertex; pronotum with fine sparse punctures, slightly pubescent; elytra appearing impunctate, but with very fine sparse punctures present, slightly pubescent at base and apex. Prosternal lobe impunctate; first through fourth abdominal sternites finely sparsely punctured, fifth sternite finely densely punctured. Middle and hind tibiae with a crest on outer margin of angulation. Male genitalia with basal lobe bluntly rounded (figs. 38, 39, 40); siphon rounded with tip slightly recurved (fig. 41).

Type locality.—Georgia?

Distribution.—UNITED STATES: Arizona; California; Florida; Indiana; Illinois; Kansas; Louisiana; Maryland; Massachusetts; Michigan; Mississippi; Missouri; New Jersey; New York; North Carolina; Pennsylvania; South Carolina; Tennessee; Texas; Virginia; West Virginia. BRITISH WEST INDIES: Grenada. COLOMBIA: Bolivar Cartagena; Boca Grande. COSTA RICA. CUBA. ECUADOR: Montalvo. EL SALVADOR. HONDURAS. JAMAICA. MEXICO: Baja California; Durango; Morelos; Oaxaca; Sonora; Vera Cruz. NICARAGUA. PANAMA. PERU: Rio Pampas.

D. pusillus is a widely distributed, variable species. The description above was taken from a Maryland specimen which agrees quite well with LeConte's original description. Specimens taken farther south and west differ in having the pronotum coarsely rather densely punctured. Occasional Florida specimens have the elytral punctures plainly visible. The southwestern U. S. specimens are usually dark brown rather than black and the males do not have lighter colored pronotal margins, it was to this form that Casey gave the name *sonoricus*. Examination of the type of *sonoricus* indicated that it cannot be kept separate from *pusillus* as the male genitalia and external structural characters are essentially the same. The brown form prevails south through Mexico and Central America with an occasional population from a coastal locality exhibiting the color pattern of typical *pusillus*. The range of *pusillus* appears to be continuous into South America at least as far as Peru. *D. argentinicus* Nunenmacher was described from Argentina and specimens from Brazil and Paraguay have been examined. There are slight differences in male genitalia which seem to separate it from *pusillus* but examination of additional specimens from intermediate localities may show that *argentinicus* is a subspecies or synonym of *pusillus*.

***Delphastus argentinicus* Nunenmacher**
(Figs. 42–45)

Delphastus argentinicus Nunenmacher, 1937, p. 183.

Length 1.30 mm, width 1.15 mm. Brown, lateral margins of pronotum, prosternum, epipleurae, and legs yellow. Head with mixed large and small punctures, slightly pubescent, coarse punctures arranged in a band across vertex; pronotum with mixed large and small punctures, slightly pubescent; elytra impunctate; prosternal lobe impunctate; first through fourth abdominal sternites finely sparsely punctured, fifth sternite finely densely punctured, pubescent. Middle and hind tibiae with a crest on outer margin of angulation. Male genitalia with basal lobe bluntly rounded; parameres projecting nearly straight upward in lateral view (figs. 42, 43, 44); siphon rounded with tip slightly recurved (fig. 45).

Type locality.—Bellavista, Prov. Corriet, Argentina.

Distribution.—Argentina. Brazil: Matto Grosso; Sao Paulo. Paraguay: Sapucay.

The apparent affinities of this species are discussed under *pusillus*. Thanks are due H. B. Leech of the California Academy of Sciences for permitting examination of the type of *argentinicus*.

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